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ternating with them. The ovary was not twisted, and only slightly bent to one side, so that the flower faced more nearly upward than in the ordinary form. The column, as usual, consisted of united stamens and pistils, but it was much less bent to one side, and the union of parts was not nearly so complete. There were three distinct anthers instead of two, alternating with the lobes of the distinctly three-lobed stigma. Instead of one large, dilated, triangular, fleshy body, apparently occupying the place of the third stamen in the ordinary form, and heretofore supposed, in fact, to be homologous with the third stamen, there were two of these bodies alternating with the petals and evidently belonging to a distinct whorl. They may really be the homologues of stamens, but, if so, the plan of the flower contemplates two distinct sets of stamens; or we may regard them as petals belonging to an inner whorl that alternates with the first. *C. spectabile* with a double labellum is recorded in BULLETIN iii, 33.

§ 117. **Botanical Literature.**—*Botany for High Schools and Colleges*, by Chas. E. Bessey.—American Science Series, Henry Holt & Co., N. Y.—This book has been more than year before the public, and has, we have been assured, been found of great practical value. It may not, however, be too late for us to record our sense of its merits. It is thus far the only work which affords to students in this country a full introduction to the latest results of vegetable biological studies, within moderate compass and at moderate cost. Professor Bessey is the botanical instructor in the Iowa Agricultural College, and he has learned by experience what are the needs of American students, and constantly refers to native plants for his illustrations. The first twelve chapters are devoted to vegetable biology in the more limited sense, from protoplasm, cells, tissues and organs to the chemistry of plants and their relations to external agents. This part is founded mainly upon Sachs's *Lehrbuch*, though frequent reference is made to other recent authorities, but as Prof. Bessey is himself an investigator and has to teach others to investigate (which indeed is the leading idea of his book), he by no means follows his authors in a servile manner. It seems to us, nevertheless, that he is a little infected with German dryness as is not unnatural in a first edition of a book on a technical subject, in which the Germans are masters. The book was intended as a companion for the laboratory, and as such, perhaps, we should not complain of it, but it was also intended for the general reader, and in his interest we recommend a little greater solution of the solid contents. For it must be borne in mind that many will want to learn from this book who have not the advantage of witnessing Professor Bessey's skill in working. In our country many take up the study of botany as a relaxation, knowing nothing of the use of the microscope or the method of preparing objects for it. It would be well, then, we think, in a work of this class, to give some instruction, at least of an introductory character, on these subjects. What with compound and binocular microscopes, section-cutters, polarizers, apparatus for mounting slides, and other accessories, the beginner is deterred from beginning; and yet much good work is done in Germany without these. Some account of the best form of a simple

dissecting microscope, and the methods of hardening or softening objects for slicing, etc., we think should accompany every popular botany. We would not be understood, however, as implying that this work is more than usually deficient in this respect, on the contrary, the reverse is the case; but still, far too little is done.

We notice that in the *American Naturalist* for September, of the Botanical department of which Prof. Bessey is editor, that he has frequent calls from learners on this subject, and suggests that some microscopist should prepare a certain set of specimens. That, no doubt, would be one step toward the desired object, as showing the student what to look for, but not aiding him much in his own investigations.

The remaining chapters, to the 20th inclusive, contain an account of the classification of plants with notes upon their economic value. In the arrangement of the lower orders the author has made some innovations which, in practice, he finds useful. This list of alliances and orders, which in the Dicotyledons comes near to that of Bentham and Hooker, is a convenience which adds greatly to the usefulness of the work.

The last chapter, xxi, is on the number of species of plants, their affinities, and their distribution in time. Full indices to the text and illustrations complete the work, which well meets an increasing desire for information on its subject.

*Preliminary Catalogue of the Flora of New Jersey*, compiled by N. L. Britton, for the Geological Survey of New Jersey.—A considerable number of copies of this Catalogue have been distributed among those who have worked in this field, that by their assistance errors may be eliminated and additions made either of plants or localities that have escaped the notice of the energetic and scrupulous compiler. It is requested that the books be returned to Prof. Geo. H. Cook, State Geologist, New Brunswick, N. J., at the close of the season of 1882. The list takes in all the botanical orders as far as the workers have reported.

This Catalogue promises to be the most complete of any in this country, and it is to be hoped that all who have any old observations to report, or who have the facilities for investigating further in this field, will make use of this rare opportunity to contribute to what will long be the guide to the study of the New Jersey Flora.

Trimen's *Journal of Botany* for September contains: 'In Memory of Hewett C. Watson' (with plate), by J. G. Baker; 'Synopsis of the Genus *Pitcairnia*,' by J. G. Baker; 'On a New *Araliaceae* of uncertain Origin,' by H. F. Hance; 'A New Tree Fern from Jamaica,' by G. S. Jenman; and 'In Memory of Reginald Pryor,' by James Britten.

The *Botanical Gazette* for September contains: Notes on *Chapmannia* and *Garberia*, by A. H. Curtiss; Botanical Notes from Illinois, by Rev. E. J. Hill; *Nasturtium lacustre*, by A. F. Foerste; Albinism, by Thomas Meehan, in which the author notes a case of reversion of white to blue flowers in *Wahlenbergia grandiflora*; Note on the rootstocks of *Convolvulus sepium*, by W. W. Bailey; and an article by Davis L. James, describing the method of dissemination of the seeds of *Nymphaea odorata*.

*Grevillea* for September contains a lengthy and interesting article by Mr. Charles B. Plowright, on 'Mimicry in Fungi;' 'New British Lichens,' by Rev. J. M. Crombie; 'Observations on *Parmelia olivacea* and its British Allies,' by Rev. J. M. Crombie; and 'New Zealand Desmidiaceae,' by William Archer.

We acknowledge the receipt of the Nineteenth Annual Report of the *Schlesischen Tausch-Vereins*, from Mr. Adolph Toepffer, Brandenburg a. d. Havel, Prussia.

*Plants of Northwestern Australia.*—We are indebted to Baron F. von Mueller for a copy of his notice of the plants collected by the Messrs. Forest and Carey in the little-known district about Nickol Bay and King's Sound. Without going into the subject of the bearing of the collections on the knowledge of the distribution of Australian plants in particular, we think our readers will be more interested in seeing what familiar genera are represented in these lists. The author has a suspicion that *Phaseolus vulgaris* may have strayed from cultivated grounds (there is a scanty overland travel with flocks); perhaps traffic may account for some others.

*Nymphaea*, 1 species; *Lepidium* 3, *L. ruderale*, L., among them; *Cleome*, 2; *Capparis spinosa*, L.; *Polygala*, 1; *Drosera*, 2; *Claytonia*, 1; *Sida*, 6; *Abutilon*, 4; *Hibiscus*, 4; *H. Goldsworthii*, F. v. M., "a highly ornamental shrub;" *Waltheria Americana*, L., and *W. India*, L.; *Erodium*, 1; *Strychnos Nux-vomica*, L.; *Euphorbia*, 3; *Salsola Kali*, L.; *Atriplex*, 2; *Polygonum lapathifolium*, L.; *Celastrus*, 1; *Cassia*, 3; *Crotalaria* 2; *Phaseolus vulgaris*, L.; *Indigofera*, 3; *Tephrosia*, 1; *Galactia*, 1; *Rhyncosia*, 1; *Ammannia*, 1; *Oldenlandia*, 1; *Pluchea*, 1; *Aster*, 1; *Flaveria*, 1; *Gnaphalium*, 1; *Lobelia*, 1; *Ipomoea*, 5; *Convolvulus*, 1; *Evolvulus*, 1; *Samolus*, 1; *Heliotropium*, 8, *H. curassavicum*, L., one of them; *Justicia*, 1; *Mimulus*, 2; *Solanum*, 3; *Commelyna*, 2; *Potamogeton*, 1; *Fimbristylis*, 2; *Fuirena*, 2; *Rhyncospora*, 1; *Scirpus litoralis*, Sch., *S. maritimus*, L., and *S. supinus*, L.; *Cladium*, 2; *Cyperus*, 5; *Sporobolus*, 1; *Eragrostis* 3; *Panicum*, 3; *Aristida*, 1; *Setaria viridis*, Beauv., *S. verticillata*, Beauv., and *S. glauca*, Beauv.; *Andropogon*, 4; *Erianthus*, 1; *Phragmites*, 1; *Acrostichum aureum*, the only fern. *Oryza sativa* was found by the author in 1856, near the West Australian boundaries.

*Macrozamia Moorei* is a new *Zamia* from the mountains of Queensland, described by Baron F. von Mueller in the *Victoria Pharm. Jour.*, March, 1881. A stem four feet high and five and a half in circumference has been sent to Kew.

*Catalogue of the Phaenogamous and Vascular Cryptogamous Plants of Michigan*, indigenous, naturalized and adventive. 8vo, pp. 105: By Charles F. Wheeler and Erwin F. Smith. Hubbardston, Mich.—This useful, recently-published catalogue contains the completest list that has as yet been given of the plants of Michigan. The number of species enumerated is 1,634, but it is expected that these figures will be considerably increased after certain unexplored portions of the State have been visited. The work is very neatly printed and is accompanied by a colored map of the State, and a preface giving an account of its botanical features.